

# Andrea Lunaro Control System Engineer

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## Key Skills

Programming skills: Matlab/Simulink, C/C++, Python, React, React Native, JavaScript, HTML5, CSS

Engineering tools: Fusion360, Solidworks, NI LabVIEW, KiCAD, Ansys Fluent

Project methodologies: Model based design, Model-driven engineering

Requirements management tools: IBM Doors, IBM Synergy

## Overall description of my work

I'm a Control system Engineer who has major experience in control logics development for aerospace applications. I use Matlab and Simulink daily as I work mainly with simulated mathematical models. My work involves every part of the control systems design experience following the model-based approach.

As part of the control team, my other tasks are to support engine testing activities and analysis of data obtained from flight missions.

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## Most Recent Role

**GE Catalyst (ATP) / AvioAero (On behalf of Experis Srl) 06-2021 / present**

**Role:** Control System Engineer

### General Context

The GE Catalyst is a turboprop engine developed to be more efficient than previous technologies thanks to the various 3D printed parts and the innovative control logic implemented in the FADEC.

### Responsibilities

- Engine test remote monitoring.
- Validation of the control system integrated into the FADEC for software certification
- Development of the engine data analysis tool (ground run and flight data).

### Technical Environment

RmT: IBM Doors, IBM Synergy

IDE/Tools: Matlab/Simulink, Spyder (Python), NPSS

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**Electric Propulsion System (EPS) / AvioAero (On behalf of Politecnico di Bari) 06-2020 / 06-2021**

**Role:** Control System Research Fellow

### General Context

EPS is a research project that aims to create a hybrid and full electric propulsion system for a single-engine helicopter for urban mobility.

## **Responsibilities**

- *Development of a mathematical torsion model of the rotor shaft for the VRT500 helicopter.*
- *Integration of the hybrid propulsion system with the physical model of the rotors.*
- *Development of the six-phase electric motor control logic (Control computer and Inverter side).*

## **Technical Environment**

*IDE/Tools: Matlab/Simulink (Simscape), Spyder (Python), C/C++*

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## **Hackatons & Projects**

- *Light Deck: DIY MIDI Lightroom controller (open-source project)*  
*<https://github.com/AndreaLunaro/LightDeck>*
  - *University Makers' Fair, Polytechnic University of Bari: Prototype of a system for quality control of batteries produced in an industrial site using **Industry 4.0 technologies**.*
  - *Br41n.io: Prototype of a system based on the **EEG helmet** and the Matlab/Simulink environment to control a virtual vehicle using **fNIRS** technology*
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## **Education**

- *Master's Degree in Automation Engineer, 110 Cum Laude/110, Politecnico di Bari 2017 – 2020*  
*Master Thesis: "Design and control of a coaxial rotors helicopter"*
  - *Erasmus Project Mechatronics Engineering, Universidad de Malaga 2019*
  - *Bachelor's Degree in Computer Science and Automation Engineering, Politecnico di Bari 2014 – 2017*  
*Bachelor Thesis: "Optimization of the grasp for robotic hands"*
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## **Language Skills**

- *Italian: Mother tongue.*
- *English: B2*
- *Spanish: B1*